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6 BEFORE THE STATE OF WASHINGTON  
7 ENERGY FACILITY SITE EVALUATION COUNCIL

8 IN RE APPLICATION NO. 96-1 )

EXHIBIT \_\_\_\_ (\_\_\_\_\_) )

9 OLYMPIC PIPE LINE COMPANY: )  
10 CROSS CASCADE PIPELINE PROJECT )  
11 \_\_\_\_\_ )

12  
13 APPLICANT'S PREFILED DIRECT TESTIMONY

14 WITNESS # 5: WILLIAM MULKEY  
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3 **Q. Please introduce yourself to the Council.**

4 A. My name is William Mulkey. I am the Manager of Health, Safety and Regulatory Affairs  
5 for Olympic Pipe Line Company ("Olympic"). My business address is 249 Main Avenue  
6 South, Suite D, North Bend, Washington, 98045.  
7

8 **Q. Please describe your educational and professional background.**

9 A. I have a Bachelor of Arts degree from the University of Colorado, and have completed  
10 additional course work in engineering and law. I have also received professional training  
11 regarding health, safety, environmental issues, spill response, hydraulics, permitting and  
12 right-of-way issues.  
13

14 I have been employed by Olympic for 26 years. I started as a field operator in 1972, and  
15 have since worked in the control center and as a right-of-way manager. In 1985, I became  
16 an officer of Olympic and the Manager of Health, Safety and Regulatory Affairs. I am  
17 currently on leave from that position and am assigned to the Cross Cascade Pipeline  
18 Project. The breadth of my experience at Olympic has given me a comprehensive  
19 understanding of both general pipeline operations as well as Olympic's approach to  
20 pipeline management.  
21

22 **Q. Briefly describe Olympic's business.**

23 A. For 33 years, Olympic has operated an underground refined petroleum product pipeline  
24 system in western Washington. The existing pipeline system is now approximately 400  
25 miles long, beginning at the four oil refineries in Skagit and Whatcom Counties,

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1 transporting product south to Seattle and SEA-TAC International Airport, and continuing  
2 south to Portland, Oregon. Olympic transports virtually all of the gasoline, diesel and jet  
3 fuel used in western Washington, over 4.5 billion gallons a year.

4  
5 Olympic intends to use the experience and expertise it has developed with the western  
6 Washington pipeline system in designing, constructing, operating and maintaining the  
7 proposed Cross Cascade Pipeline. In particular, Olympic will operate the Cross Cascade  
8 Pipeline with the same health, safety and environmental policies and procedures that it  
9 has successfully employed in western Washington. Olympic is proud of the  
10 environmental, health and safety record it has established over the last 33 years.

11  
12 **Q. What is the subject of your testimony?**

13 **A.** My direct testimony is intended to address the following issues:

14 First, I will generally describe Olympic's approach to health, safety and environmental  
15 issues. Second, I will describe the design of the Cross Cascade Pipeline from the  
16 standpoint of preventing the accidental release of petroleum products. Third, I will  
17 discuss the maintenance and inspection procedures that Olympic will implement during  
18 operation of the Cross Cascade Pipeline. Fourth, I will describe the methods Olympic  
19 will use to monitor the pipeline's operation and to detect any accidental releases. Fifth, I  
20 will describe the spill response plan that Olympic will develop for the Cross Cascade  
21 Pipeline.

1  
2 **Q. Describe Olympic's general approach to health, safety and environmental matters.**

3 A. Health, safety and environmental issues are extremely important to Olympic. Indeed,  
4 Olympic is the recipient of numerous American Petroleum Institute industrial safety  
5 awards and commendations. Olympic's commitment to protecting the environment  
6 safety is formally expressed in its Environmental Policy, which is attached as Exhibit A.  
7 Olympic makes every effort to comply with all applicable federal and state health, safety  
8 and environmental regulations, and in many instances goes beyond those requirements to  
9 implement additional measures and precautions. Olympic is also committed to the  
10 principles and guidelines outlined in the American Petroleum Institute's Strategies for  
11 Today's Environmental Partnership (STEP) program as explained in the attached Exhibit  
12 B.

13  
14 **Q. What has been Olympic's experience with accidental releases from its western  
15 Washington pipeline system?**

16 A. Of the approximately 850 million barrels of refined petroleum products that Olympic has  
17 transported on its western Washington pipeline from 1990 to 1997, only 800 barrels, or  
18 .00009% of the total, were accidentally released. Furthermore, much of the 800 barrels  
19 released from the pipeline was released into secondary containment structures at facilities  
20 or was otherwise recovered from the environment. A complete list of accidental releases  
21 is provided in Part 2.9 of the Application.

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1 **Q. How does Olympic's record of accidental releases compare to other pipelines and**  
2 **other modes of transporting petroleum products.**

3 A. Olympic's record is better than average for pipelines. Pipelines also generally perform  
4 better than tanker trucks and at least as well as barges with respect to accidental releases.  
5 The relative product release statistics for pipelines, trucks and barges are addressed in the  
6 Product Spill Analysis found in Appendix B to the Application and in Exhibit C to this  
7 testimony, the 1993 California State Fire Marshall study entitled "Hazardous Liquid  
8 Pipeline Risk Assessment." Pipelines are also a safer form of transportation. According  
9 to the California State Fire Marshall study, marine transport causes 3 times as many  
10 fatalities as pipeline transport, and highway transport causes 300 times as many fatalities  
11 as pipeline transport.  
12

13 **Q. Please generally describe the design features of the Cross Cascade Pipeline that are**  
14 **intended to prevent accidental releases.**

15 A. From Olympic's perspective, it is extremely costly to respond to accidental product  
16 releases. Olympic, therefore, designs and operates its pipelines in order to minimize the  
17 risk of accidental releases. The Cross Cascade Pipeline will be constructed of high-  
18 strength, welded steel pipe that meets or exceeds American Petroleum Institute  
19 requirements for wall thickness, with thicker walled pipe used for road, rail, bridge and  
20 stream crossings. The pipe and the full penetration arc welds will be highly ductile  
21 (flexible), and therefore less likely to rupture. One hundred percent of the welds will be  
22 x-rayed during construction to ensure quality and coated to further minimize the  
23 possibility of a release. The entire pipeline will be tested hydrostatically to ensure its  
24 integrity. Olympic will also utilize modern valve technology, including pressure relieving  
25 devices placed at appropriate locations to avoid pressure surges. Finally, Olympic will

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1 install an impressed current cathodic protection system to prevent corrosion. Parts 2.3  
2 and 2.9 of the Application provides a detailed description of the release prevention  
3 features of the proposed pipeline.  
4

5 **Q. Historically, what have been the most common causes of accidental releases?**

6 A. Industry-wide, the most common causes have been corrosion and damage by third parties.  
7

8 **Q. What measures will Olympic take to avoid accidental releases caused by corrosion  
9 or third parties?**

10 A. Olympic has designed the Cross Cascade Pipeline with several features to minimize the  
11 possibility of corrosion. In particular, the high-strength steel pipe will be epoxy coated  
12 with a high-density polyethylene before being placed in the ground. Olympic will also  
13 install an impressed current cathodic protection system. Cathodic protection prevents  
14 corrosion by diverting corrosion-causing molecules to a ground bed containing a  
15 sacrificial material that can be replaced. This is done with a very slight electrical current,  
16 which is induced at a known sight and terminates at the ground bed. Olympic will also  
17 conduct internal inspections of the pipeline on a regular basis, which will help Olympic  
18 detect areas of corrosion, thereby allowing corrective action before corrosion results in a  
19 release.  
20

21 Third party damage to pipelines typically results when people undertake excavation  
22 activity and are unaware of the presence of a buried pipeline. In order to avoid this sort of  
23 damage, Olympic will have signs posted along the pipeline route, and will participate in  
24 the “one-call” system, which requires property owners to call a toll free number to  
25 determine if any buried utility lines may be encountered in connection with their planned

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activities. Olympic will also conduct weekly aerial inspections of the pipeline corridor (weather permitting), which will allow Olympic to discover third-party activities that may pose a risk to the pipeline.

**Q. Briefly explain how Olympic will maintain the Cross Cascade Pipeline to reduce the possibility of accidental releases.**

A. Olympic will conduct regular maintenance along the entire length of the pipeline and at all pipeline facilities. Olympic will maintain all valves, pipes and fittings at a working pressure suitable to the design requirements of the system. Olympic will regularly inspect and maintain the cathodic protection system. Olympic will perform periodic internal pipeline inspections with internal inspection tools called “smart pigs,” which are sent through the pipeline to detect corrosion, dents or other defects along the inside of the pipeline wall so that repairs can be made before leaks develop. Olympic will meet or exceed all federal, state and local construction and operational standards, and maintain all records pertaining to those standards.

**Q. If an accidental product release occurred, how would Olympic detect the release?**

A. Olympic relies upon primarily three means of detecting accidental releases: (1) a computerized leak detection system, (2) visual inspections, and (3) third-party notifications.

First, the Cross-Cascade Pipeline will be equipped with a state-of-the-art Supervisory Control and Data Acquisition or “SCADA” system, with a computerized leak detection component developed by Modisette & Associates. This computerized system allows Olympic technicians to monitor pipeline pressures, flow rates and line balances from the

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1 control center located in Renton, Washington. If operating conditions deviate outside  
2 normal operating standards, audible and visual alarms will be activated, and the source of  
3 the abnormal condition will be investigated. Operators at the Renton Control Center are  
4 able to shut down and isolate the entire pipeline, or any part of it, at any time.

5 Computerized hydrocarbon detection devices will also be installed at pipeline facilities.  
6 A release of product at a facility will set off alarms at both the facility and the control  
7 center, and generally shut down of some portion of the pipeline system automatically.  
8

9 Second, Olympic will visually inspect the pipeline and related facilities. Although  
10 Olympic is only required by law to conduct aerial inspections 26 times a year, Olympic's  
11 policy is to schedule an aerial inspection of the pipeline once a week, weather permitting.  
12 Maintenance and operating personnel will also visually inspect pump stations and  
13 segments of the pipeline on the ground during their normal course of daily work.  
14 Olympic personnel driving along rights-of-way will make routine recorded observations.  
15 Personnel will note abnormal conditions and Olympic will investigate them immediately  
16 under all circumstances.  
17

18 Finally, Olympic relies upon the notification of third parties. Olympic marks its pipeline  
19 with warning signs and encourages people to report conditions that may indicate that a  
20 release has occurred. Warning signs will be posted on the perimeter fences of all  
21 facilities with a 24-hour toll-free telephone number to call in the event of an emergency.  
22 The Olympic 24-hour telephone number is also printed on right-of-way signs at highway  
23 and water crossings, on milepost markers, and along the right-of-way.  
24  
25



1  
2 **Q.**

**Please describe how the computerized leak detection system works.**

3 **A.**

The SCADA system provides the system controllers with information concerning line balances, pressures and flow rates for the pipeline, as well as operating conditions at individual pipeline facilities. The controllers can compare safe operating standards with current operating conditions, and immediately investigate conditions deviating outside normal operating standards to determine the source of the potential problem.

The leak detection system is discussed in detail in Part 2.9 of the Application. It is a customized system that is based on a computer model of expected volumes and pressures under proper operating conditions. It scans the pipeline data every 4 to 5 seconds, and sounds an alarm if it detects an abnormal condition. Alarms notify control center operators whenever a system analog value deviates outside of preset, absolute, or percentage of change limits. The SCADA system automatically documents such events for immediate, on-line review.

A fundamental leak detection capability of SCADA that alerts controllers to possible problems is the over/short subsystem. The surveillance functions include over/short volume calculations based upon: net volumes from metered injection and receiving points, net volumes calculated from tank level readings and net line segment inventory changes. The net over/short is calculated and based upon net volumes. The calculation takes into consideration the volumetric changes within the pipeline segment, and the inventory that is metered into and out of the pipeline segment. Calculations are made at least of every 2 minutes, with statistics compiled for short term, hourly, and 24 hour values.

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2 **Q. How accurate is the computerized detection system?**

3 A. The Cross Cascade Pipeline will use the same instrumentation, communications and  
4 computer system technology developed for and used on the existing pipeline. It is  
5 designed to detect releases of less than one percent (1%) of average pipeline flow rate.  
6 In a recent test conducted on the western Washington pipeline, the system proved capable  
7 of detecting a release of one-half of one percent (.5%) of flow rate within 15 minutes.  
8

9 **Q. What happens if an accidental release were detected?**

10 A. Immediately upon recognition or notification of a release, the problem would be  
11 addressed with emergency shutdown and lockout procedures. Control center operators  
12 are able to shut down the entire pipeline, or any part of it, at any time, and if a  
13 catastrophic failure occurred, the pipeline would shut down automatically. If a release  
14 were detected, Olympic would immediately shut down and isolate portions of the pipeline  
15 from the control center and dispatch field personnel to the reported site immediately for  
16 an initial assessment of the situation. Olympic's objective is to respond to the site of any  
17 detected or reported release within 1 hour. Olympic's specific goals for the initial hours  
18 of a release include: notifying authorities, securing the source of the release, activating  
19 the response organization, activating spill response equipment, assessing the situation,  
20 collecting and managing information, and identifying release trajectories and initial  
21 impact areas.  
22

23 Local emergency response authorities, including police and fire department personnel  
24 would be brought to the scene as necessary. Olympic would initiate a notification  
25 sequence. This would begin with the Olympic incident commander or a designated

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1 alternate. Upon receipt of the initial spill assessment, Olympic would notify the National  
2 Response Center and the federal, state, and local agencies, as outlined in the spill  
3 notification checklist. Olympic would also notify and activate local and regional  
4 response contractors and mutual aid cooperatives as required.

5  
6 Olympic's response efforts would focus on securing public safety, identifying and  
7 stopping the source of the release, containing and recovering the released material. The  
8 first responders would assess the situation and determine the exact location of the release,  
9 evaluate the magnitude and extent of the release, and forecast the release trajectory.  
10 Based on this initial assessment, the incident commander in conjunction with the on-  
11 scene unified command authority might recommend further action to control the source,  
12 placement of barriers to prevent further spread of the released product, direct specific  
13 measures to protect sensitive resources, and/or the deployment of chemicals or other  
14 materials designed to restrict the spill and its potential impacts on human and  
15 environmental health. Environmentally sensitive areas, predetermined in the spill  
16 response plan, would be identified in the vicinity of the release and in the projected  
17 downstream and/or down-gradient trajectory of the spill. The release would be  
18 controlled, the amount of product released would be determined, and the released product  
19 will be quickly contained. Product in soil or water would be recovered, cleaned-up and  
20 disposed of in compliance with all statutory and regulatory standards.

21  
22 Olympic remains fully responsible for spill response efforts. All Olympic field  
23 employees and most office employees are trained and certified in hazardous materials  
24 emergency response operations. Olympic also provides special training for contract  
25 personnel involved in spill response operations, including: safety procedures, site

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1 protocols, spill notification sequences, environmental awareness, the organization and  
2 responsibilities of spill response personnel, and the operation and maintenance of  
3 emergency equipment.

4  
5 **Q. Will Olympic have a spill response plan in place for the proposed pipeline?**

6 **A.** Yes. Olympic has a Spill Prevention, Control & Countermeasure Plan (SPCC) for certain  
7 facilities and a Spill Contingency Plan for the entire pipeline system. These plans  
8 describe the policies and procedures to be followed by Olympic personnel in the  
9 prevention, preparation and response to spills. Olympic will prepare similar plans for the  
10 Cross Cascade Pipeline Project, and will submit them to EFSEC for review and approval.  
11 These plans are discussed in Parts 2.9 and 7.2 of the Application. As with the existing  
12 pipeline, Olympic will also conduct spill drills for the Cross Cascade Pipeline in  
13 cooperation with state and federal agencies.

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16 **END OF PRE-FILED DIRECT TESTIMONY**

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1  
2 I declare under penalty of perjury that the above testimony is true and correct to the best  
3 of my knowledge. Executed this \_\_\_\_\_ day of August, 1998.  
4  
5

6 \_\_\_\_\_  
William Mulkey  
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